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POSTER SESSION

1004.I Renal Function and Cardiac Catheterization

Sunday, March 17, 2002, 9:00 a.m.-11:00 a.m.
Georgia World Congress Center, Hall G
Presentation Hour: 9:00 a.m.-10:00 a.m.

1004.I-9 Prevention of Renal Function Worsening After Percutaneous Coronary Interventions by Hemofiltration in Patients at High Risk for Contrast Nephropathy

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Background. Radiocontrast exposure and hemodynamic instability during percutaneous coronary interventions (PCI) can cause renal dysfunction requiring hemodialysis (HD), especially in patients with pre-existent renal failure (RF). RF requiring HD is associated with poor outcomes, including a 40% in-hospital mortality. Therefore, preventive strategies to avoid acute RF are of considerable interest. Continuous venovenous hemofiltration (CVVH) allows: 1) high volume, controlled hydration before and after exposure to contrast 2) its removal from the circulation 3) vascular stability. We investigated the role of CVVH, as compared with isotonic hydration, in preventing contrast nephropathy in high-risk patients.
Methods. 54 pts with RF (creatinine >2 mg/dl) underwent either CVVH (n=34; two-lumen cannula in a femoral vein; fluid replacement:1000 ml/hr, no weight loss), or hydration with saline (n=20; 1 ml/kg/h) for the 24hrs before and after PCI.
Results.
At discharge, creatinine increased (>0.5 mg/dl) in 6% pts of CVVH and in 80% of saline group (p<0.001). Temporary HD was required in 39% and permanent HD in 10% of the saline group and in 0% of CVVH group. In-hospital mortality was 3% in CVVH and 22% in saline group. (p<0.01). Renal function data are shown in the table (*=p<0.01 vs. CVVH; #=p<0.01 vs. baseline).
Conclusions. In patients with CRF undergoing PCI, periprocedural CVVH is effective to prevent renal function deterioration due to contrast nephrotoxicity and to improve in-hospital prognosis.

		Baseline	Before PCI	End of CVVH/ saline	Hospital Discharge
Diuresis (ml/24h)	CVVH	1517±381	1422±367	1905±1072	1630±370
	saline	1490±430	1532±460	720±1100*#	805±980*#
BUN (mg/dl)	CVVH	132±44	88±29#	75±13#	94±51#
	saline	138±56	122±48*	170±110*#	165±122*#
Creatinine (mg/dl)	CVVH	2.9±0.9	2.1±0.6#	2.1±0.5#	2.7±0.9
	saline	2.8±0.9	2.7±1*	3.5±1.2*#	3.1±1*#

1004.I-10 The Role of Mucomyst Administration Prior to Percutaneous Interventions on Renal Function In Patients With Chronic Renal Failure

Milena G. Adamian, Issam Moussa, Roxana Mehran, George Dangas, Michael Farkhou, Yuliya Adamyan, Mohamed Mohamed, Andrei Negoita, Arlene Reyes, Monica Losquadro, Michael Collins, Edward M. Kreps, Jeffrey W. Moses, Gregg W. Stone, Martin B. Leon, *Lenox Hill Heart and Vascular Institute, New York, New York, Cardiovascular Research Foundation, New York, New York.*

Background: Recent studies have suggested that nephrotoxicity of contrast agents in patients with chronic renal insufficiency (CRI) undergoing CT scanning could be attenuated by administration of the antioxidant Acetylcysteine (Mucomyst). However, it is unknown whether Mucomyst (M) can be as effective during percutaneous coronary interventions (PCI) in patients with CRI.
Methods: Between November 2001 and June 2001 we evaluated 57 consecutive patients with baseline serum creatinine >1.5 and <3.4 mg/dl (not on hemodialysis) who underwent PCI using iso-osmolar non-ionic contrast agent (Iodixanol). Out of this group, 35 patients received Mucomyst (600 mg *bid*) with IV hydration (M group), and 22 pts received only IV hydration (Non-M group). Peak post-procedure serum creatinine (SC) levels during the following 48 hours were obtained. Contrast-induced nephropathy (CIN) was defined as 25% increase in SC levels compared to baseline SC value.
Results: There were no differences between the M and No-M groups in age (71 ± 10 vs. 72 ± 10, p=0.62), diabetes mellitus (57% vs. 70%, p=0.55) or other risk factors. The No-M group included more females (50% vs. 14%, p=0.006).

	M (n=35)	No-M (n=22)	P-value
Baseline Creatinine (mg/dl)	1.89 ± 0.44	1.96 ± 0.5	0.62
Peak Creatinine (mg/dl) at 48 hrs	1.88 ± 1.0	2.48 ± 1.3	0.05
CIN (%)	2.9	36.4	0.002
In-Hospital Dialysis (%)	2.9	13.7	0.29
Contrast Volume (cc)	273 ± 113	303 ± 152	0.47

Conclusion: Mucomyst administration prior to PCI in CRI patients has protective effect on renal function. Randomized prospective trials are required to determine the validity of these findings.

1004.I-11 Prevention of Contrast-Induced Renal Dysfunction With Acetylcysteine in Patients Undergoing Coronary Angiography

Elie N. Mouhayar, George Tadros, Akin A. O. Akinwande, Brenda Campbell, James C. Blankenship, Elias A. Iliadis, *Geisinger Medical Center, Danville, Pennsylvania.*

Background: Acetylcysteine in patients undergoing CT scan imaging with intravenous contrast reduces the incidence of acute renal dysfunction. We examined the effect of acetylcysteine in patients undergoing coronary angiography. **Methods:** Fifty five consecutive patients receiving 3 doses of acetylcysteine prior to cardiac catheterization were compared to 55 historical controls. All patients in both groups had baseline serum creatinine ≥ 1.2mg/dl and received intravenous hydration before and after the procedure. Serum creatinine levels at baseline and 48 hours after procedure were compared. **Results:** Univariate analysis of clinical variables revealed no significant difference between the groups except for a higher mean baseline creatinine in the treatment group (2(+/-0.7) vs 1.8(+/-0.4) mg/dl, p=0.04). There was no difference in the amount or type of contrast used. The mean change in creatinine after 48 hours was - 0.4(+/-0.3) vs + 0.1(+/-0.3) mg/dl for treatment and control groups (p<0.001). In patients with baseline Cr > 2 mg/dl, the benefit was larger (-0.4(+/-0.4) vs + 0.5(+/-0.3) mg/dl, p<0.001)(Table). Multivariate analysis confirmed pre-treatment with acetylcysteine as an independent predictor of renal protection (p<0.001). **Conclusions:** Prophylactic use of acetylcysteine prevented reduction of renal function after coronary angiography . The benefit was greater in patients with baseline serum creatinine > 2 mg/dl.

Baseline Creatinine ≥ 1.2	Acetylcysteine group (n = 55)	Control group (n = 55)	p-value
Baseline creatinine, mean (SD)	2.0 (0.7)	1.8 (0.4)	0.041
Change after 48 hrs, mean (SD)	-0.4 (0.3)	0.1 (0.3)	< 0.001
Baseline Creatinine ≥ 2.0	Acetylcysteine group (n = 15)	Control group (n = 9)	p-value
Baseline creatinine, mean (SD)	2.6 (1.1)	2.5 (0.7)	0.741
Change after 48 hrs, mean (SD)	-0.4 (0.4)	0.5 (0.3)	<0.001

1004.I-12 Clinical Outcomes in Patients With Chronic Renal Dysfunction Following Percutaneous Coronary Intervention: A Report From the New York State Angioplasty Registry

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Background: Patients with chronic renal failure (CRF) often have comorbidities that place them at higher risk for adverse outcomes following percutaneous coronary interventions. Whether renal dysfunction itself is an independent predictor for post-procedural major adverse cardiac events (MACE) is less evident.
Methods: Using the 1995 New York State PTCA Database, we compared baseline characteristics and in-hospital events between patients with chronic renal failure (creatinine >2.5 or requiring hemodialysis) and those without significant renal insufficiency. We then sought to determine whether renal dysfunction was a significant independent predictor of MACE (death, emergent CABG, QWMI).
Results: (see table) Patients with renal disease had higher rates of hypertension (HTN), diabetes, prior myocardial infarctions (MI) and peripheral vascular disease (PVD). However, when using multivariate logistic regression analysis, renal dysfunction remained a strong independent predictor (OR=2.5, p=0.001, 95% C.I. 1.47-4.35) of MACE.
Conclusion: Chronic renal disease is a significant independent risk factor for MACE following percutaneous coronary intervention. There is a several-fold increase in post-procedural mortality in patients with renal failure.

	No CRF (N=22,218)	CRF (N=370)	P value
Patient Factors:			
Age (years)/Male(%)	62/69	65/65	<0.01/0.08
HTN(%)/Diabetes(%)	60/19	84/45	<0.001
Prior MI(%)/CABG(%)	8/13	13/22	<0.001
Smoking(%)/PVD(%)	26/9	10/32	<0.001
In Hospital Events:			
MACE(%)	1.1	4.9	<0.001
Death/QWMI/CABG(%)	0.6/ 0.3/1.4	4.3/ 0.0/1.9	<0.001/0.63/0.42
CVA (%)	2.5	6.8	<0.001